



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/753,371 | 01/02/2001 | Yoichi Mochida | P/1071-1220 | 1674 |

7590 01/16/2003

Keating & Bennett LLP
10400 Eaton Place
Suite 312
Fairfax, VA 22030

[REDACTED] EXAMINER

BELLAMY, TAMIKO D

[REDACTED] ART UNIT [REDACTED] PAPER NUMBER

2856

DATE MAILED: 01/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|-----------------|-----------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/753,371 | MOCHIDA, YOICHI |
| Examiner | Art Unit | |
| Tamiko D. Bellamy | 2856 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication; even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 04 November 2002.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1,2 and 4-11 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-2, and 4-11 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.
 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment to the claims filed on November 4, 2002 does not comply with the requirements of 37 CFR 1.121(c) because a parenthetical expression should follow the claim number indicating the status of the claim as amended or newly added (e.g., "amended," "twice amended," or "new"). Amendments to the claims filed after March 1, 2001 must comply with 37 CFR 1.121(c) which states:

(c) Claims.

(1) Amendment by rewriting, directions to cancel or add: Amendments to a claim must be made by rewriting such claim with all changes (e.g., additions, deletions, modifications) included. The rewriting of a claim (with the same number) will be construed as directing the cancellation of the previous version of that claim. A claim may also be canceled by an instruction.

(i) A rewritten or newly added claim must be in clean form, that is, without markings to indicate the changes that have been made. A parenthetical expression should follow the claim number indicating the status of the claim as amended or newly added (e.g., "amended," "twice amended," or "new").

(ii) If a claim is amended by rewriting such claim with the same number, the amendment must be accompanied by another version of the rewritten claim, on one or more pages separate from the amendment, marked up to show all the changes relative to the previous version of that claim. A parenthetical expression should follow the claim number indicating the status of the claim, e.g., "amended," "twice amended," etc. The parenthetical expression "amended," "twice amended," etc. should be the same for both the clean version of the claim under paragraph (c)(1)(i) of this section and the marked up version under this paragraph. The changes may be shown by brackets (for deleted matter) or underlining (for added matter), or by any equivalent marking system. A marked up version does not have to be supplied for an added claim or a canceled claim as it is sufficient to state that a particular claim has been added, or canceled.

(2) A claim canceled by amendment (deleted in its entirety) may be reinstated only by a subsequent amendment presenting the claim as a new claim with a new claim number.

Since the reply filed on July 7, 2002 appears to be *bona fide*, applicant is given a TIME PERIOD of **ONE (1) MONTH or THIRTY (30) DAYS** from the mailing date of this notice, whichever is longer, within which to submit an amendment in compliance with 37 CFR 1.121 in order to avoid abandonment. EXTENSIONS OF THIS TIME PERIOD MAY BE GRANTED UNDER 37 CFR 1.136(a).

2. The amendment filed November 4, 2002 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall

introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: a single unitary member.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 1 rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claim contains a single unitary member.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the

reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1, 6/1, 7/1, 8/1, and 10/1 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. Touge et al. et al. (6,134,961).

With respect to claim 1, Touge et al. discloses in Figs. 2 and 5 an angular velocity sensor, a substrate 100 (col. 6, lines 25-26), an oscillator 7 disposed on the substrate 100, a damping means 8a, 8b for suppressing the y-directional vibrations of the oscillator 7 (col. 11, lines 36-54), and a damping means 2a, 2b for suppressing the x-directional vibrations of the oscillator 77 (col. 12, lines 59-67, col. 13, line 1). The impact to the substrate 100 would inherently be damped by damping means 8a, 8b, 2a, and 2b.

With respect to claims 6/1, Touge et al. discloses in Figs. 2 and 5 an oscillator 11 formed to be displaced in an oscillating direction parallel to the substrate 100 and in the detection direction orthogonal to the substrate 100, and a damping means 2a, 2b for suppressing the x-directional vibrations of the oscillator 77, and damping means 8a, 8b for suppressing the y-directional vibrations of the oscillator 7. Together damping means 8a, 8b and 2a, 2b suppress x and y-direction vibrations of the oscillator 7. Damping means 8a, 8b and 2a, 2b would inherently damp impact to the substrate 100.

With respect to claims 7/1, Touge et al. discloses in fig. 2 an oscillator 11 formed to be displaced in an oscillating direction and detecting directions parallel to the substrate 100 and orthogonal to each other.

With respect to claims 8/1 and 10/1, Touge et al. discloses in Fig. 2 an angular velocity sensor wherein the oscillator 11, the oscillator support beam 9a, and the damping mechanism 8a,

8b are unitarily formed by a polycrystalline silicon material (col. 6, lines 40-42, col. 11, lines 8-12).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2,5, 4, 6/2, 6/4, 7/2, 7/4, 8/2, 8/4, 10/2, 10/4 -11/4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Touge et al. (6,134, 961).

With respect to claim 2, Touge et al. does not specifically disclose wherein the damping mechanism includes a damping clearance portion and a frame for compressing gas. Touge et al. discloses in Fig. 2 an oscillator 11 supported on the substrate 100 by at least one oscillator support beam 8a, an oscillation-generating means 5,6, and an angular-velocity detecting means 12, 13 for detecting a displacement of the oscillator as an angular velocity, and an damping mechanism formed of a frame support beam 8, and wherein the oscillator 11 is supported on the inside of the frame 7 via a oscillator support beam 9a. The damping mechanism/spring beams are connected to the coupling frame c, and the intersecting points of frame 7 are connected to damping means/spring beams 8a, 8b. The coupling of the damping mechanism/spring beams to the coupling frame c inherently provides a damping clearance portion. As well known in the art, the space between the damping means does contain a gas such as air. It was commonly known to those of ordinary skill in the art to have a damping mechanism that includes a damping clearance portion arranged between a support frame for the purpose of damping the impact of an

oscillating directions and preventing the impact from being transferred to the oscillator to a substrate. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate a gas that is compressed due to the damping mechanism for the purpose recognized in the art of Touge et al., as disclosed above.

With respect to claim 4, Touge et al. discloses an angular velocity sensor wherein the oscillator 11, the oscillator support beam 9a, and the frame 7 have an entire resonant frequency that is set (col. 8, lines 58-60), and an damping mechanism formed of a frame support beam 8, and wherein the oscillator 11 is supported on the inside of the frame 7 via a oscillator support beam 9a, and the vibrators each have a frame 7 and the floating support members include spring beams (col. 4, lines 61-67).

With respect to claim 5, Touge et al. lacks the detail of wherein the damping mechanism includes a damping clearance portion and a frame for compressing gas. The damping mechanism/spring beams are connected to the coupling frame c, and the intersecting points of frame 7 are connected to damping means/spring beams 8a, 8b. The coupling of the damping mechanism/spring beams to the coupling frame c inherently provides a damping clearance portion. As well know in the art, the space between the damping means does contain a gas such as air. It was commonly known to those of ordinary skill in the art to have a damping mechanism that includes a damping clearance portion arranged between a support frame for the purpose of damping the impact of an oscillating directions and preventing the impact from being transferred to the oscillator to a substrate. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate a gas that is compressed due

to the damping mechanism for the purpose recognized in the art of Touge et al., as disclosed above.

With respect to claims 6/2 and 6/4, Touge et al. discloses in Fig. 2 an oscillator 11 formed to be displaced in an oscillating direction parallel to the substrate 100 and in the detection direction orthogonal to the substrate 100, and a damping means 9a, 9b for suppressing the x-directional vibrations of the oscillator 7, and damping means 8a, 8b for suppressing the y-directional vibrations of the oscillator 7. Together damping means 8a, 8b and 9a, 9b suppress x and y-direction vibrations of the oscillator 7. Damping means 8a, 8b and 9a, 9b would inherently damp impact to the substrate 100.

With respect to claims 7/2 and 7/4, Touge et al. discloses in fig. 2 an oscillator 11 formed to be displaced in an oscillating direction and detecting directions parallel to the substrate 100 and orthogonal to each other.

With respect to claims 8/2, 8/4, 9, 10/2, 10/4, and 11/2, 11/4 Touge et al. discloses in Fig. 2 an angular velocity sensor wherein the oscillator 11, the oscillator support beam 9a, and the damping mechanism 8a, 8b are unitarily formed by a polycrystalline silicon material (col. 6, lines 40-42, col. 11, lines 8-12). Touge et al. does not specifically disclose an angular velocity sensor having the oscillator support beam, and frame having an entire resonance frequency set to 1/(square root of 2) times more than less a resonant frequency of the oscillator. However, having the oscillator support beam, and frame having an entire resonance frequency set to 1/(square root of 2) times more than less a resonant frequency of the oscillator would be inherent to use as the designers personal preference. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify Touge et al. to include the oscillator support

beam, and frame having an entire resonance frequency set to 1/(square root of 2) times more than less a resonant frequency of the oscillator for the purpose of providing an angular velocity sensor that is able to suppress the degradation of the signal-to-noise ration associated with leaks of the vibration driving signal thereby heighten the detection precision for the angular velocity sensor (Touge et al., col. 2, lines 52-56).

Allowable Subject Matter

3. The indicated allowability of claim 5 is withdrawn in view of the new rejection.

Response to Remarks

4. Applicant's arguments filed November 4, 2002 have been fully considered but they are not persuasive. The applicants argue that prior art does not teach suggest an impact damping mechanism disposed on the substrate or a oscillator support beam. However it is the examiners position that claims 1-11 are not patentable over Touge et al.

The applicant gives reference to Touge et al. Touge et al. discloses a damping means/spring beams 8a, 8b for suppressing the y-directional vibrations of the oscillator 7 (col. 11, lines 36-54), and a damping means/spring beams 2a, 2b for suppressing the x-directional vibrations of the oscillator 77 (col. 12, lines 59-67, col. 13, line 1). As well know in the art, spring beams are use as used for purpose of damping/suppressing the impact of an oscillation from a substrate. The applicant states in the remarks page 7, second paragraph, that the elements 8a, and 8b would dampen oscillations in the Y-direction, and not the X-direction. Touge et al. discloses an angular velocity sensor wherein the oscillator 11, the oscillator support beam 9a, and the frame 7 have an entire resonant frequency that is set (col. 8, lines 58-60), and an damping mechanism formed of a frame support beam 8, and wherein the oscillator 11 is supported on the

inside of the frame 7 via a oscillator support beam 9a, and the vibrators each have a frame 7 and the floating support members include spring beams (col. 4, lines 61-67).

Conclusion

This action is a **final rejection** and is intended to close the prosecution of this application. Applicant's reply under 37 CFR 1.113 to this action is limited either to an appeal to the Board of Patent Appeals and Interferences or to an amendment complying with the

If applicant should desire to file an amendment, entry of a proposed amendment after final rejection cannot be made as a matter of right unless it merely cancels claims or complies with a formal requirement made earlier. Amendments touching the merits of the application which otherwise might not be proper may be admitted upon a showing a good and sufficient reasons why they are necessary and why they were not presented earlier.

A reply under 37 CFR 1.113 to a final rejection must include the appeal from, or cancellation of, each rejected claim. The filing of an amendment after final rejection, whether or not it is entered, does not stop the running of the statutory period for reply to the final rejection unless the examiner holds the claims to be in condition for allowance. Accordingly, if a Notice of Appeal has not been filed properly within the period for reply, or any extension of this period obtained under either 37 CFR 1.136(a) or (b), the application will become abandoned.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamiko D. Bellamy whose telephone number is (703) 305-4971. The examiner can normally be reached on Monday through Friday 8:30 AM to 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (703) 305-4705. The fax phone numbers for the

Art Unit: 2856

organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Tamiko Bellamy

T.B.
January 11, 2003

HELFER/EXAMINER
PRIMARY EXAMINER

Helen Kunkle